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ABSTRACT

Pain is affected by a variety of motivational and affective variables, such as relaxation, social modeling, and social support. Norman Cousins has proposed that laughter is a particularly effective pain antagonist. To compare the effects of laughter on pain sensitivity with the effects of relaxation (a variable known to reduce pain sensitivty), male and female undergraduate students (N=42) participated in one of four groups: laughter, relaxation, narrative (a control for distraction), or no treatment control. Students listened to a 20 minute tape appropriate for their group, after which discomfort was induced and measured through inflation of a blood pressure cuff. Statistical analyses showed that discomfort thresholds of students in the laughter and relaxation groups were reliably higher than the thresholds of students in the control and narrative groups. Laughter was as effective as, or more effective than, relaxation in facilitating pain reduction. (WAS)

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Effects of Laughter on Discomfort Thresholds

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Effects of Laughter on Discomfort Thresholds

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To test Norman Cousins' proposal that laughter is a pain antagonist, thresholds for pressure induced discomfort of 20 male and 20 female subjects were measured after each subject listened to twenty minute long auido tapes which were either laughter inducing, relaxation inducing, or narrative or listened to no tape. Discomfort thresholds were significantly increased for subjects in the laughter inducing and relaxation conditions, suggesting that laughter has serious potential as an intervention for the reduction of discomfort or pain.

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It is generally agreed that pain is affected by a variety of motivational and affective variables (1). Treatments which reduce anxiety or reduce the muscle tension which characteristically accompanies pain lead to a reduction in pain sensitivity. Even brief relaxation procedures, for instance, increase pain thresholds in both laboratory (2) and clinical (3) situations. Other motivational-affective variables which have been found to reduce pain sensitivity include social modeling, information about the potentially painful experience, and social support (4).

Norman Cousins (5) has proposed that laughter is a particularly effective pain antagonist and has vividly described his experience of the positive affects of laughter in promoting pain reduction. In light of the consistency of findings that other affective variables alter pain sensitivity, it seemed likely that laughter might, as Cousins suggested, reduce pain sensitivity. The present study was carried out to compare the effects of laughter on pain sensitivity with the effects of relaxation, a variable known to reduce pain sensitivity.

Twenty-one male and twenty-one female undergraduate student subjects were randomly assigned to one of four groups: 1) laughter, 2) relaxation, 3) narrative (a control for the effects of distraction), or 4) no treatment control (6). Subjects were introduced individually to the experimental situation by the male experimenter and subjects in groups 1 - 3 were asked to listen to a twenty minute

long tape recording appropriate to their group assignments. One tape was a laughter inducing tape, the second a progressive relaxation tape, and the third an informative narrative tape (7).

After listening to the appropriate tape (Groups 1 - 3), or to no tape (Group 4), the subject's threshold for discomfort was measured. Discomfort was induced with pressure from the automatic inflation of a blood pressure cuff (Narco Biosystems Electro-Sphygmomanometer) placed on the non-dominant arm of the subject, seated in an upright position in a padded chair. Pressure was increased at a rate of 15 mmHg/second from 0 mmHg to the point at which the subject indicated that he or she experienced discomfort, or to a maximum of 300 mmHg, and was deflated in one to two seconds at a rate of 150 mmHg/sec. The maximum value of 300 mmHg was reached by two subjects on a total of four trials. After two preliminary measures to familiarize the subject with the procedures, three test trials were carried out. There was a 30-second inter-trial interval between each inflation. The average discomfort threshold values are shown in Table 1.

Insert Table 1 about here

A factorial analysis of variance with sex (male vs. female) and group (1 - 4) as factors indicated that the discomfort thresholds of subjects in the various treatment groups differed reliably

($F = 3.55$; 3,32df; $p < .05$). Although the thresholds of women were lower than those of men in all conditions, sex differences did not reach conventional levels of statistical reliability ($F = 3.58$; 1,32df; $p < .07$). Duncan's Multiple Range tests indicated that the discomfort thresholds of the subjects in the laughter and relaxation groups were reliably higher than the thresholds of subjects in the control and narrative groups.

Laughter did, as Cousins has personally reported, raise the threshold for discomfort. Laughter was as effective as, or even somewhat more effective than, relaxation at facilitating pain reduction. We hope that these data will encourage both individuals and those involved with patient care in clinical settings to take laughter seriously as a potential intervention for the reduction of discomfort or pain.

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6. Data from one female subject in the laughter group were discarded because this subject failed to laugh out loud

while listening to the humorous tape. Data from one male subject in the narrative condition were discarded because this subject failed to follow instructions.

7. Group 1: Lilly Tomlin, A Dedication to Alexander Graham Bell, Arista Records. Group 2: A. Lazarus, Progressive Relaxation (Tape 1), Instrumental Dynamics, Inc., Chicago, Ill. Group 3: A. Rostenberg, Ethics and Sociology of Peer Review, Dorm. Arts Laboratories, Kansas City, Mo.
8. Cousins, op. cit.

Table 1

Discomfort Thresholds

(mmHg)

	No Treatment	Narrative	Relaxation	Laughter
Males	93.92	107.31	167.33	195.85
Females	87.66	61.97	111.99	141.33
Average Values	90.79	84.64	139.66	168.59